Air Quality Permitting
Statement of Basis

September 18, 2005

Permit to Construct No. P-050206

Bennett Lumber Products, Inc., Princeton

Facility ID No. 057-00008

Prepared by:

Darrin Mehr, Permit Writer
AIR QUALITY DIVISION

FINAL PERMIT

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Acronyms, Units, and Chemical Nomenclature

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
gr/dscf	grain (1 lb = 7,000 grains) per dry standard cubic foot
HAPs	Hazardous Air Pollutants
HCHO	Chemical formula for formaldehyde
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
MACT	Maximum Available Control Technology
Mbf	thousand board feet
MMbf	million board feet
MMBtu	Million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
OSU	Oregon State University
PM	Particulate Matter
PM_{10}	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
Rules	*Rules for the Control of Air Pollution in Idaho*
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	synthetic minor
SO_2	sulfur dioxide
T/R	transformer/rectifier
T/yr	Tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Section 201, *Rules for the Control of Air Pollution in Idaho* (*Rules*) for Permits to Construct.

2. FACILITY DESCRIPTION

Bennett Lumber Products, Inc. (Bennett), operates a lumber drying facility near Princeton. The facility consists of a wood-fired boiler to supply steam to six existing kilns and a seventh kiln permitted by this project. The kilns are used to dry green lumber that has been rough-cut in the existing sawmill. Kiln-dried lumber is finished into dimensional lumber product with existing sawmill equipment.

3. FACILITY / AREA CLASSIFICATION

Bennett is defined as a major facility because the potential to emit of CO emissions exceeds 100 tons per year. The AIRS classification is "A" because the potential to emit of CO is greater than major source levels. The facility is a synthetic minor source of PM_{10} emissions.

The facility is located within AQCR 62 and UTM zone 11. The facility is located in Latah County which is designated as unclassifiable for all criteria pollutants (PM_{10}, CO, NO_x, SO_2, lead, and ozone).

The AIRS information provided in Appendix C defines the classification for each regulated air pollutant at Bennett's Princeton facility. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

Bennett has submitted a PTC application for the construction of a new double-track lumber drying kiln which is 73 feet in length. The capacity of the proposed lumber drying kiln is approximately 14.954 million board feet per year (MMbf/yr) and 1,850 bf/hr based on 8,064 hours per year of operation. The facility has requested the retention of the existing annual lumber throughput limit of 97.2 MMbf/yr be applied to all seven drying kilns.

4.1 Application Chronology

6/03/05	15 day pre-permit construction application received
6/03/05	$1,000 application fee received with application
6/17/05	15 day pre-permit construction approval issued by DEQ
6/29/05	DEQ received a certified submittal from Bennett on netting of TAPs emissions
7/01/05	PTC application declared complete
9/17/05	DEQ received a revised ambient impact analysis and emission inventory to reflect permit allowable PM_{10} emissions of 1.16 lb/hr and 2.00 T/yr for shavings cyclone P21.

4.2 Permit Chronology

September 20, 2005	A draft permit was sent via e-mail to the Lewiston Regional Office for review and comment. No comments were submitted by the regional office.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC.

5.1 Equipment Listing

The equipment to be installed as a result of this PTC action is listed in Table 5.1.

Table 5.1 KILN No. 7 SPECIFICATIONS

Source	Manufacturer	Design	Length of Kiln (feet)	Average Capacity (MMbf/yr)	Manufacturer's Design Rated Capacity (MMbf/yr)
Kiln No. 7	Wellons	Double-track	73	14.954	Not provided

The facility operates 6 existing lumber drying kilns at the Princeton facility. The equipment specifications are listed in Table 5.2.

Table 5.2 EXISTING DRYING KILN SPECIFICATIONS

Source	Manufacturer	Design	Length of Kiln (feet)	Average Capacity (MMbf/yr)[a,b]	Manufacturer's Design Rated Capacity (MMbf/yr)
Kiln No. 1	Lumber Systems	Double-track	73	14.954	Not provided
Kiln No. 2	Moore	Double-track	73	14.954	Not provided
Kiln No. 3	Lumber Systems	Single-track	73	7.477	Not provided
Kiln No. 4	Lumber Systems	Double-track	73	14.954	Not provided
Kiln No. 5	Lumber Systems	Double-track	73	14.954	Not provided
Kiln No. 6	Lumber Systems	Double-track	73	14.954	Not provided

a) million board feet per year

b) Average capacity reflects a kiln-wide throughput limit of 97.2 MMbf/yr applied equally to each kiln. Tier II/PTC No. T2-010208 permitted 6 drying kilns with an average capacity of 17.672 MMbf/yr for each double-track kiln and 8.836 MMbf/yr for the single-track kiln.

5.2 Emissions Inventory

The permittee included emission estimates for all sources of air pollutant emissions from the Princeton facility in the application. All existing emissions units were addressed in Tier II/PTC No. T2-010208, issued on January 13, 2005 and Tier I OP No. 020203, issued January 14, 2005. The emission inventory matches the inventory used to issue these permits. The emissions estimates reviewed by DEQ for this project focused on the lumber drying kiln emission estimates. See Appendix A to review Bennett's emission inventory. Emission estimates appeared reasonable.

The emission estimates applied the requested annual lumber throughput of 97.2 MMbf/yr to all seven kilns equally. This is the same approach used by the permittee in the existing Tier II/PTC and Tier I permit applications for the 6 existing kilns. By applying the annual throughput limit to each kiln equally, the permittee assumed that the average short term and annual throughputs will decrease slightly, from 2,190 board feet per hour (bf/hr) to 1,850 bf/hr for all double track kilns at the facility. Average annual throughput for each double track kiln is reduced from 17.672 MMbf/yr to 14.954 MMbf/yr, and from 8.836 MMbf/yr to 7.477 MMbf/yr for the single track kiln.

The permittee estimated PM_{10} and VOCs emissions from the six existing lumber drying kilns and proposed kiln No. 7. The emission factors used by the permittee to estimate PM, PM_{10} and VOC emissions from the lumber drying kilns are listed in Table 5.3. Each emission factor is independent of wood species processed.

Table 5.3 DRYING KILN EMISSION FACTORS

Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
PM[a]	0.19(0.33)[b]	lb/Mbf[c]	Idaho DEQ Emission Factor Guide for Wood Industry
PM_{10}[d]	0.19	lb/Mbf	Idaho DEQ Emission Factor Guide for Wood Industry
VOCs[e]	1.5	lb/Mbf	Idaho DEQ Emission Factor Guide for Wood Industry

a) particulate matter
b) Bennett estimated PM emissions using the PM_{10} emission factor. DEQ estimated PM emissions using the factor listed in parentheses.
c) pounds per thousand board feet of lumber
d) particulate matter with a mean aerodynamic diameter of 10 microns or less
e) volatile organic compounds

Table 5.4 shows the estimated emissions of the pollutants, including filterable and condensable PM and PM_{10} emissions, and VOC emissions. A factor of 40% variability was added by the permittee for the hourly VOC and PM_{10} emission estimates from the drying kilns, and 20% for PM_{10} emission rates for hourly PM_{10} emission rates for the cyclones and baghouse. The inflated hourly PM_{10} emission rates are intended to account for worst-case hourly emissions. The modeling performed for PM_{10} emissions in the application demonstrated compliance with the PM_{10} NAAQS.

Table 5.4 CRITERIA AIR POLLUTANT EMISSION INVENTORY

Source (Source ID)	PM[a]		PM_{10}[b]		Nitrogen Oxides		Sulfur Dioxide		Carbon Monoxide		VOC[c]	
	(lb/hr)[d]	(T/yr)[e]	(lb/hr)[d]	(T/yr)[e]	(lb/hr)[d]	(T/yr)[e]	(lb/hr)[d]	(T/yr)[e]	(lb/hr)[d]	(T/yr)[e]	(lb/hr)[d]	(T/yr)[e]
Kiln No. 7	0.49 (0.85)	1.42 (2.47)	0.49	1.42	--	--	--	--	--	--	3.89	11.22
Kilns No. 1 through No. 6 (aggregated emissions)	2.71 (4.71)	7.81 (13.56)	2.71	7.81	--	--	--	--	--	--	21.40	61.68
Boiler	13.80	59.13	13.66	58.54	11.76	50.39	1.34	5.73	32.08	137.42	2.03	8.70
Sawdust Cyclone (P7)	0.79	1.51	0.79	1.51	--	--	--	--	--	--	--	--
Shavings Cyclone (P11)	0.15	0.04	0.15	0.04	--	--	--	--	--	--	--	--
Shavings Cyclone (P12)	1.14	1.96	1.14	1.96	--	--	--	--	--	--	--	--
Shavings Cyclone (P13)	1.16	2.00	1.16	2.00	--	--	--	--	--	--	--	--
Shavings Cyclone (P14)	1.16	2.00	1.16	2.00	--	--	--	--	--	--	--	--
Sawdust Cyclone (P21)	0.79 (1.16)	1.51 (2.00)	0.79 (1.16)	1.51 (2.00)	--	--	--	--	--	--	--	--
Baghouse (P24)	2.0E-5	4.0E-5	2.0E-5	4.0E-5	--	--	--	--	--	--	--	--
Total:	22.19 (24.92)	77.38 (84.67)	22.05 (22.42)	76.79 (77.28)	11.76	50.39	1.34	5.73	32.08	137.42	27.32	81.60

a) Particulate Matter
b) Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
c) Volatile Organic Compounds
d) Pounds per hour
e) Tons per year

The TAP emissions associated with the addition of Drying Kiln No. 7 are subject to compliance with the TAPs increments. The permittee used the emission factors listed in Table 5.5 to estimate short term and annual emissions for the existing and proposed lumber drying kilns. The permittee used their worst-case emission factors to estimate TAPs emissions.

The permittee included emission estimates for all sources of air pollutant emissions from the Princeton facility. The emission estimates were based on the emissions estimates used to issue Tier I operating permit No. T1-020203, issued January 14, 2005.

To estimate emissions from the lumber drying kilns, the emissions were based on an annual throughput of 97.2 million board feet (MMbdft) of lumber. This is the annual kiln throughput limit requested in the permit application to be applied to all seven kilns in aggregate.

The hazardous air pollutant (HAP) and toxic air pollutant (TAP) emissions were estimated based on the same throughput assumptions as the criteria air pollutant emission estimates except that worst-case hourly emissions were estimated by multiplying the average hourly emissions rate by a factor of 1.4 for all HAP/TAP emissions. Table 5.5 lists the emission factors and Table 5.6 lists the emission estimates of the TAP and HAP emissions, respectively. According to the application materials, the TAPs and HAPs emission estimates were based on worst-case tree species for formaldehyde (white fir) and methanol (ponderosa pine). Acetaldehyde emissions were estimated using an emission factor accepted by the Idaho DEQ, which is based on data generated to support the promulgation of the Plywood and Wood Products MACT standards. The acetaldehyde emission factor is independent of wood specie processed in the drying kilns.

Table 5.5 HAP/TAP EMISSION FACTORS REPRESENTING WORST CASE WOOD SPECIE

TAP	Wood Specie	HAP/TAP[c] Emissions Factor (lb/Mbf)[d]	Source of Emission Factor
Acetaldehyde	Generic	0.0078	K. Hanks and D. Bullock, MRI, to M. T. Kissel, EPA, Baseline Emissions Estimates for the Plywood and Composite Wood Products Industry, June 9, 2000
Formaldehyde	White fir	0.0041[a]	Oregon State University Small-scale Kiln Study, M. Milota, September 29, 2000
	(Lodgepole)	(0.0040)	
Methanol	Ponderosa pine	0.065	Oregon State University Small-scale Kiln Study, M. Milota, September 29, 2000
	(White fir)	(0.122)[b]	

a) The formaldehyde emission factor used in the PTC application was 0.0041 lb/Mbf. This is a worst-case value. The average emission factor listed in the cited reference is actually 0.0028 lb/Mbf for white fir. Lodgepole is the worst-case wood specie in the cited reference, with an emission factor of 0.0040 lb HCHO/Mbf. Data from IDEQ staff analyses are listed in parentheses.

b) Worst-case methanol emissions factor is actually for white fir. The value in parentheses was obtained by IDEQ staff from Table 1 of the Oregon State University Small-scale Kiln Study.

c) Hazardous air pollutant/toxic air pollutant

d) Pounds per thousand board feet of lumber

IDEQ staff estimated the potential methanol emissions from the drying kilns using an emission factor of 0.122 lb/Mbf for white fir due to an apparent transcription error in the permittee's emission estimates. This results in a potential methanol emission rate of 1.76 lb/hr and 6.0 T/yr for all seven kilns at a throughput of 97.2 MMbf/yr. The methanol emission rate for Drying Kiln No. 7, alone, is 0.27 lb/hr and 0.92 T/yr. The screening emission rate limit established by IDAPA 58.01.01.585 is 17.3 lb/hr. The value submitted by the permittee and the value calculated by IDEQ staff are well below the screening rate emission limit, and no further analysis is necessary for this permit action. See Appendix D to review the summary table of TAP/HAP emission factors developed by the OSU Small-Scale Kiln Study. The emission factor used by the permittee to estimate formaldehyde emissions is a conservative factor, and is appropriate for estimating emissions for this project.

No other HAP or TAP emissions were estimated by the permittee for the lumber drying kilns. TAPs emissions from other emissions units at the facility are not subject to review under IDAPA 58.01.01.210 for this project.

Table 5.6 HAP/TAP EMISSION INVENTORY

Source (Source ID)	Formaldehyde		Acetaldehyde		Methanol	
	(lb/hr)[a]	(T/yr)[b]	(lb/hr)	(T/yr)	(lb/hr)	(T/yr)
Kiln No. 1	0.011	0.031	0.020	0.058	0.145 (0.271)[c]	0.49 (0.92)
Kiln No. 2	0.011	0.031	0.020	0.058	0.145 (0.271)	0.49 (0.92)
Kiln No. 3	0.005	0.015	0.010	0.029	0.072 (0.135)	0.24 (0.45)
Kiln No. 4	0.011	0.031	0.020	0.058	0.145 (0.271	0.49 (0.92)
Kiln No. 5	0.011	0.031	0.020	0.058	0.145 (0.271)	0.49 (0.92)
Kiln No. 6	0.011	0.031	0.020	0.058	0.145 (0.271)	0.49 (0.92)
Kiln No. 7	0.011	0.031	0.020	0.058	0.145 (0.271)	0.49 (0.92)
Total:	0.058	0.20	0.132	0.379	0.94 (1.76)	3.18 (5.97)

a) Pounds per hour
b) Tons per year
c) Values in parentheses were calculated by IDEQ using the applicant's throughput rate assumptions and a methanol emission factor of 0.122 lb/Mbf lumber throughput.

5.3 Modeling

The modeling memorandum is included as Appendix B. The results show that the facility has demonstrated compliance with the NAAQS to the satisfaction of the Department. Table 5.7 lists the results of Bennett's full impact analysis for PM_{10} emissions.

Table 5.7 FULL IMPACT ANALYSIS RESULTS

Pollutant	Averaging Period	Facility Ambient Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ambient concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS[a]
PM_{10}	24-hour	47.8	73	120.8	150	80.5%

a) National Ambient Air Quality Standards
b) Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

The permittee's consultant submitted a revised modeling demonstration for PM_{10} ambient impacts by email on September 17, 2005. The ambient impact analysis was revised by the permittee's consultant to reflect the permit-allowable PM_{10} emissions rate of 1.16 lb/hr for cyclone P21. The original modeling analysis used a PM_{10} emission rate of 0.79 lb/hr. The increased emission rate was verified by D. Mehr, DEQ, in the output file, titled, "BEN0505ST21_87_PM_TEN.LST". DEQ did not re-run the modeling based on the revised files. Based on the revised submittal, the PM_{10} design concentration was not affected by the increased PM_{10} emission rate. Table 5.7, above, is accurate for this project.

An ambient impact demonstration for TAPs compliance was not required due to the TAPs emissions netting approach utilized in the PTC application.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

Bennett is constructing an additional lumber drying kiln to process wood species with slower drying times. The permittee has requested that the existing permitted lumber throughput, PM_{10}, and VOC emissions limits be applied to the six existing drying kilns and the new seventh kiln. The existing throughput and criteria air pollutant emissions limits are specified in Tier II/PTC No. T2-010208, issued January 13, 2005, and Tier I permit No. T1-020203, issued January 14, 2005.

The existing Tier II/PTC and Tier I permits authorize the operation of a Zurn Industries hog-fuel boiler. There is no enforceable steam production limit in these permits, so any potential increase in steam demand does not constitute a modification provided the boiler is operated within the permitted PM_{10}, NO_x, and CO emission limits and the state of Idaho grain loading standard for wood-fired boilers. Several process cyclones and a baghouse are included in the existing permits and are subject to PM_{10} emission limits. Because the annual throughput of lumber dried in the kilns will remain unchanged, annual PM_{10} emissions from these sources will not increase. The facility conducted a facility-wide full ambient impact analysis based on average PM_{10} emission rates for point sources of PM_{10} emissions.

IDAPA 58.01.01.203 ..... Permit Requirements for New and Modified Stationary Sources

IDAPA 50.01.01.203.02 ..... NAAQS

Bennett submitted an ambient impact analysis to demonstrate compliance with the PM_{10} NAAQS. Refer to Appendix B to examine the DEQ modeling review memorandum.

IDAPA 58.01.01.209.05.a ..... Permit to Construct Procedures for Tier I Sources

Bennett submitted an application for a permit to construct Drying Kiln No. 7. The PTC will be issued in accordance with IDAPA 58.01.01.209.05.a.i and 209.05.a.ii. Bennett may operate the sources permitted by PTC No. P-050206 as long as the provisions of the PTC do not violate terms and conditions contained in Tier I operating permit No. T1-020203, issued January 14, 2005, and complies with IDAPA 58.01.01.380.02—Changes to Tier I Operating Permits Requiring Permit Revisions.

Tier I operating permit No. T1-020203 expired on May 15, 2005, and is currently being processed as a renewal. This PTC may be incorporated in the Tier I permit as applicable.

IDAPA 58.01.01.210 ..... Demonstration of Preconstruction Compliance with Toxic Standards

Bennett demonstrated compliance with the TAPs rules by netting TAPs emissions in accordance with IDAPA 58.01.01.210.09. The method used by the permittee netted annual TAPs emissions over the previous five year period. The application requests the PTC No. P-050206 maintain the existing throughput limit of 97.2 MMbf/yr, and apply the limit to all seven drying kilns instead of the existing six drying kilns. Therefore, annual emissions of all TAPs will not increase as a result of the construction of Kiln No. 7. With a zero net emissions increase in future potential emissions established by maintaining the same throughput limitations on all drying kilns, Bennett was asked by DEQ to verify that no other sources of emissions of formaldehyde, acetaldehyde, and methanol, except those included in Bennett's emission inventory, operated at any time during the previous five year period. This was needed to confirm that the netting approach for the lumber drying kilns is valid to issue the PTC.

Bennett responded with a certified letter, dated June 27, 2005, which stated, in part:

> "There has never been any time, during the last five years, when any known source of formaldehyde, acetaldehyde, or methanol other than those included in the emission inventory submitted with this application has operated on the facility. Neither have any of the inventoried sources of those TAPs ever operated during the last five years at levels higher than those documented in the emission inventory."

Therefore, the net emissions increase is interpreted to be zero for TAPs. Per IDAPA 58.01.01.210.09.c, the net emissions increases are less than applicable screening emission limits in IDAPA 58.01.01.585 and 586. No further procedures for demonstrating preconstruction compliance are required for the PTC application.

IDAPA 58.01.01.210.09.d requires that emission limits and other permit terms for the TAPs be included in the PTC to assure the facility will be operated in the manner described in the PTC application. DEQ has included emission limits for formaldehyde and acetaldehyde in the PTC. These TAPs are regulated by fairly stringent screening emission rate limits and ambient concentration increments. The emissions limits will be made enforceable using the throughput limits and monitoring and recordkeeping requirements applied to all seven kilns.

IDAPA 58.01.01.300..... Procedures and Requirements for Tier I Operating Permits

Bennett is a Tier I major facility, and was issued Tier I Operating Permit No. T1-020203 on January 14, 2005. The Tier I permit expired on May 15, 2005, and is currently in the process of being renewed by DEQ. This PTC will not affect the facility's major facility status for CO emissions, and it does not increase HAP emissions. Bennett is an area (or minor) source of HAP emissions.

The requirements and conditions included in this PTC are not intended in any way to contravene any permit conditions in the Tier I operating permit. Therefore, Bennett may request that DEQ include the appropriate revisions in the Tier I permit after PTC No. P-050206 is issued. Permit requirements related to the state-enforceable TAPs program do not constitute applicable requirements under the Tier I operating permit program.

IDAPA 58.01.01.700..... Particulate Matter – Process Weight Limitations

The process weight rule applies to the proposed kiln because the kiln emits particulates and will commence operation after October 1, 1979. The emissions are limited according to the equation in the rule.

Kiln No. 7's capacity as listed in the PTC application's emissions calculations is 14.954 MMbf/yr, or 1.85 thousand board feet/hr (Mbf/hr), based on operations of 8,064 hr/yr. The permittee provided a PM_{10} emission estimate of 0.49 lb/hr. DEQ estimated PM emissions based on the PM emission factor of 0.33 lb PM/Mbf, obtained from the Idaho DEQ Emission Factor Guide for Wood Industry.

The following calculations establish Lumber Drying Kiln No. 7's process weight and the corresponding PM emissions limitation.

(32 lb/cf[1]) x (0.054 cf/bf[2]) x (1.85 Mbf/hr) = 3,197 lb/hr, average process weight for one hour.

[1] AP-42, Appendix B, density of Douglas fir (representative density for all lumber species).
[2] Conversion from 1 bf, based on 2-by-4s, to 1 cf.

The PM process weight limitation for sources constructed on or after October 1, 1979, and having a process weight below 9,250 lb/hr, is determined using the following equation specified by IDAPA 58.01.01.701.a.

$$E = 0.045(PW)^{0.60}$$

$$E = 0.045(3,197)^{0.60} = \underline{5.7 \text{ lb/hr allowable PM emissions}}$$

Actual estimated hourly PM emissions:

1.85 Mbf/hr x 0.33 lb PM/Mbf lumber = 0.61 lb/hr average hourly PM emission rate.

The estimated hourly PM emissions are less than the calculated allowable PM emission limit. The proposed lumber drying kiln meets the process weight rate PM emission limit.

40 CFR 63 Subpart DDDD..... NESHAPS: Plywood and Composite Wood Products

63.2231 Does this subpart apply to me?

This subpart applies to you if you meet the criteria in paragraphs (a) and (b) of this section, except for facilities that the Environmental Protection Agency (EPA) determines are part of the low-risk subcategory of PCWP manufacturing facilities as specified in appendix B to this subpart.

(a) You own or operate a PCWP manufacturing facility. A PCWP manufacturing facility is a facility that manufactures plywood and/or composite wood products by bonding wood material (fibers, particles, strands, veneers, etc.) or agricultural fiber, generally with resin under heat and pressure, to form a structural panel or engineered wood product. Plywood and composite wood products manufacturing facilities also include facilities that manufacture dry veneer and lumber kilns located at any facility. Plywood and composite wood products include, but are not limited to, plywood, veneer, particleboard, oriented strandboard, hardboard, fiberboard, medium density fiberboard, laminated strand lumber, laminated veneer lumber, wood I-joists, kiln-dried lumber, and glue-laminated beams.

(b) The PCWP manufacturing facility is located at a major source of HAP emissions. A major source of HAP emissions is any stationary source or group of stationary sources within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (10 tons) or more per year or any combination of HAP at a rate of 22.68 megagrams (25 tons) or more per year.

Bennett's Princeton facility has potential HAP emissions of less than 10 tons per year of any single HAP and less than 25 tons per year of combined HAPs (see emissions inventory and Appendix A). 40 CFR 63.2231(a) includes lumber kilns located at any facility as applicable. 40 CFR 63.2231(b) includes facilities that emit or have the potential to emit any single HAP at a rate of 10 tons per year or more or any combination of HAPs at a rate of 25 tons per year or more. 40 CFR 63.2231 specifies that the subpart applies if the facility meets the criteria of both (a) and (b). Bennett meets the criteria of (a) but not of (b) since the federally-enforceable permit conditions established by this permit and Tier II/PTC No. T2-010208, issued January 13, 2005, limit the potential to emit of HAPs to less than 10 tons per year of any single HAP and to less than 25 tons per year of any combination of HAPs. Therefore, 40 CFR 63 Subpart DDDD does not apply to Bennett's Princeton, Idaho facility.

5.5 *Fee Review*

A $1000 PTC application fee was received on June 3, 2005. The project consists of a new source or modification to an existing source with an increase of emissions of less than one ton per year. In accordance with IDAPA 58.01.01.225, a PTC processing fee of $1,000 is due, and was paid on September 26, 2005. The processing fee summary is listed in Table 5.8.

Table 5.8 PTC PROCESSING FEE SUMMARY

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0.0	0.0
SO_2	0.0	0.0	0.0
CO	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0
VOC	0.0	0.0	0.0
TAPS/HAPS	0.0	0.0	0.0
Total:	**0.0**	**0.0**	**0.0**
Fee Due			**$ 1,000.00**

6. PERMIT CONDITIONS

This section lists permit conditions that are written for operations, monitoring, recordkeeping, and testing.

PTC No. P-050206 contains the opacity limit for emissions from the lumber drying kilns. Monitoring and recordkeeping to establish compliance with the opacity limit are already included in the Tier I permit and were not included in the PTC. Significant levels of opacity are not expected from this source of emissions.

Permit Condition 2.3 contains the opacity emission limit and reads:

2.3 ***Opacity Limit***

Emissions from the drying kilns, or any other stack, vent, or functionally equivalent opening associated with the drying kilns, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625, unless otherwise specified.

Emission limits on formaldehyde and acetaldehyde emissions from all the drying kilns were included in the PTC per IDAPA 58.01.01.210.09.d because the facility applied a netting analysis, that included both existing and new kilns, to demonstrate compliance with the TAPs increments. Annual TAPs emissions do not increase as a result of this modification. A throughput limit applied to all existing and new Drying Kiln No. 7, and throughput monitoring and recordkeeping requirements were included in the PTC to maintain the existing annual PTE for criteria air pollutant and TAP emissions. No testing is required to demonstrate actual emissions are less than potential permitted emissions.

Permit Condition 2.4 contains the TAPs emission limits and is shown below. The limits are based on the total potential emissions as follows:

Formaldehyde = (0.199 tons/yr)(2000 lb/ton) = 400 lb/ton

Acetaldehyde = (0.379 ton/yr)(2000 lb/ton) =760 lb/yr

2.4 TAPs Emission Limits

2.4.1 Formaldehyde

The combined emissions of Formaldehyde from Kilns No.1 through 7 shall not exceed a total of 400 pounds per any consecutive 12-month period (lb/yr).

2.4.2 Acetaldehyde

The combined emissions of Acetaldehyde from Kilns No. 1 through 7 shall not exceed a total of 760 pounds per any consecutive 12-month period (lb/yr).

Permit Condition 2.5 contains the annual VOC and PM_{10} emission limits from the effective Tier II/PTC and Tier I permits, but applies the emissions limits to the six existing kilns and Kiln No. 7, in aggregate.

Permit Condition 2.5 reads:

2.5 PM_{10} and VOC Emission Limits

Emissions of PM_{10} and volatile organic compound (VOC) shall not exceed the corresponding limits listed in Table 2.1.

Table 2.1 CRITERIA AIR POLLUTANT EMISSION RATE LIMITS

Emissions Limits[a] –Annual (T/yr)[b]		
Source Description	***PM_{10}[c]***	***VOCs[d]***
	T/yr	***T/yr***
The combined emissions of Lumber Drying Kilns Nos. 1, 2, 3, 4, 5, 6, and 7	*9.2*	*72.9*

[a] *Compliance determined by a pollutant-specific U.S. EPA reference method, DEQ-approved alternative, or as determined by DEQ's emissions estimation methods used in this permit analysis.*

[b] *Compliance with annual limits determined by multiplying the actual or allowable (if actual is not available) pound-per-hour emission rate by the allowable hours per year that the process(es) may operate(s), or by actual annual production rates.*

Permit Condition 2.6 contains the operating requirement to demonstrate compliance with the emission limits in Permit Conditions 2.4 and 2.5, and reads:

2.6 Throughput Limits – Existing Kilns Nos. 1 through 6 and Kiln No. 7

The throughput through the kilns shall not exceed 97.2 million board feet per any consecutive 12-month period. This throughput limit shall be applied to existing kilns No. 1 through No. 6 and new kiln No. 7.

Permit Condition 2.7 contains the monitoring and recordkeeping requirements to demonstrate compliance with the emissions limits and throughput limits established in Permit Conditions 2.4, 2.5, and 2.6.

Permit Condition 2.7 reads:

2.7 ***Throughput Monitoring Requirement***

Each month, the permittee shall monitor and record the throughput of the Lumber Drying Kilns No. 1 through No. 7 for that month and for the most recent 12-month period. A compilation of the most recent two years of records shall be kept on site and shall be made available to DEQ representatives upon request.

PTC No. P-050206 is a PTC for a new emissions unit at the Princeton facility. All permit conditions are new.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

On September 20, 2005, a draft permit was issued to the DEQ Lewiston Regional Office. No comments were received on the permit.

7.2 Facility Review of Draft Permit

Bennett's application does not include a request to review a facility draft of the PTC.

7.3 Public Comment

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c, from July 25, 2005 until August 24, 2005. No comments were received and no person or entity has requested a public comment period.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that Bennett Lumber Products, Inc., be issued final PTC No. P-050206 for lumber drying kiln No. 7. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

DM/sd Permit No. P-050206
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APPENDIX A

P-050206

Emissions Inventory

TRANSFER/CONVEYOR CALCULATIONS

CONVEYORS

Name	Code	Wind Spd (MPH)	Moisture (%)	Max Transf Rate (BDT/hr)	Transfer Rate (BDT/hr)	Throughput (BDT tons/yr)	Emission Factor *	Max TSP (lb/hr)	Avg. TSP (lb/hr)	TSP (ton/yr)	PM 10 (tons/yr)	Operating hours
Hog Infeed Conveyor	TR 1	9	43	5.87	4.89	22,460	0.00009	1.10	0.92	2.10	0.00	4,590
Bark Conveyor System	TR 2	9	43	4.40	3.67	1,123	0.00009	0.83	0.69	0.11	0.00	306
Hog Outfeed Conveyor	TR 3	9	43	5.87	4.89	22,460	0.00009	1.10	0.92	2.10	0.00	4,590
Bark Screen Overs Conveyor	TR 4	9	43	0.59	0.49	2,246	0.00009	0.11	0.09	0.21	0.00	4,590
Deck Trash Conveyor	TR 5	9	50	0.47	0.39	1,800	0.00008	0.07	0.06	0.14	0.00	4,590
Truck Bark Bin Conveyor	TR 6	9	43	5.28	4.40	20,214	0.00009	0.99	0.83	1.89	0.00	4,590
Boiler Bark Conveyor	TR 7	9	43	5.28	4.40	20,214	0.00009	0.99	0.83	1.89	0.00	4,590
Sawdust Conveyor	TR 8	9	47	3.94	3.28	15,071	0.00008	0.65	0.54	1.25	0.00	4,590
Chips Overs/fines Conveyor	TR 9	9	47	0.56	0.46	2,125	0.00008	0.09	0.08	0.18	0.00	4,590
Main Fuel Conveyor	TR 10	9	43	3.54	2.95	25,290	0.00009	0.66	0.55	2.37	0.00	8,568
Aux Fuel Conveyor	TR 11	9	43	2.40	2.00	6,096	0.00009	0.16	0.13	0.57	0.00	8,568
Fly ash Transport	TR 12	9	5	0.02	0.02	150	0.00190	0.08	0.07	0.29	0.00	8,568
							Total	6.8	5.7	13.1	0.0	

* Use AP 42 11.2.3 Aggregate Handling
particulate matter multiplier (k) = .35 for pm 10
average wind speed = 9 mph
moisture content sawdust = 47%
moisture content bark = 47%
moisture content shavings = 11.1%
moisture content chips = 47%

Bin to Truck Transfers

Name	Code	Em. F (lb/ton)	Throughput (BDT)	Max Transf Rate (BDT/hr)	Transfer Rate (BDT/hr)	Emissions (tons/yr)	Moisture Content	Operating hours		
Bin to truck	TR 13	0.5	**20,214**	50	25	5.05	47	8,568		
Sawdust Bin to truck	TR 14	2	**15,071**	50	25	15.07	47	8,568		
Chip bins to truck	TR 15	0.5	**42,509**	75	50	10.63	47	8,568		
Shavings to Truck	TR 16	0.5	**19,986**	50	25	5.00	11.1	8,568		
Fuel Reload to Truck	TR 17	2	**6,040**	50	25	6.04	43	8,568		
					Total	41.79				

Note: TR 13, 15, and 16 all have long sidewalls, allowing 75% control
Note: TR 12 is ash moving - very small amount - negligible emissions.

Storage Calculations

PILES

Name	Code	Width Ft.	Length Ft.	Height Ft.	Area Acres	TSP lb/acre/day Factor *	TSP tons/yr	PM 10 lb/acre/day Factor *	PM 10 tons/yr	Assumptions
Boiler Fuel Storage	ST 4	50	75	20	0.09	9.35	0.15	0.0	0.0	1/2 active, 1/2 inactive
Log Yard Waste # 1	ST 7	20	40	10	0.02	9.35	0.03	0.0	0.0	1/2 active, 1/2 inactive
Rock Storage	ST 8	75	140	10	0.24	3.90	0.17	0.0	0.0	inactive
Log Yard Waste #2	ST 9	30	100	5	0.07	9.35	0.12	0.0	0.0	1/2 active, 1/2 inactive
Ash Storage	ST 10	40	10	5	0.01	3.90	0.00	5.2	0.01	inactive, all PM 10 fines
						Total	0.47		0.01	

BINS

Name	Code	Thput (tons/yr)	E. Fact (lb/ton)		Max Transf (tons/hr)	Avg Trans (tons/hr)	Operat. Hrs/yr	120% Particulate max (lbs/hr)	Particulate (tons/yr)
Truck Bark Bin	ST 1	20,214	0.1	BDT	50	25	8,568	0.3	1.0
Sawdust Bin	ST 2	16,071	0.1	BDT	50	25	8,568	0.2	0.8
Truck Chip Bin	ST 3	42,509	0.1	BDT	75	50	8,568	0.6	2.1
Aux Fuel Bin	ST 5	6,096	0.1	BDT	2.4	2	8,568	0.1	0.3
Shavings Truck Bin	ST 6	19,986	0.1	BDT	50	25	8,568	0.2	1.0
							Total	1.4	5.2

Note: All storage bins are enclosed, with small vent openings for air, (assume 90% effic).

Solvent Calculations

Name	Code	Throughput (gallons)	E. Factor (lb/1000 gal)		Total HAPs (tons/yr)	VOC's (tons/yr)	
Diesel Tank 1	S 1	137,400	0.02		0.00E+00	1.4E-03	No Haps
Diesel Tank 2	S 2	137,400	0.02		0.00E+00	1.4E-03	No Haps
Gasoline Tank	S 3	23,400	8.2	*	6.02E-02	9.6E-02	
#1 Diesel Tank	S 4	600	0.02		3.84E-06	6.0E-06	
Stove Oil Tank	S 5	9,677	0.02		6.19E-05	9.7E-05	
Parts Washer	S 6	tons/yr/unit :	0.330	*	1.72E-04	1.7E-02	assume 95% efficiency-closed lid, 1 unit.
Parts Washer	S 7	tons/yr/unit :	0.330	*	1.72E-04	1.7E-02	assume 95% efficiency-closed lid, 1 unit.
Parts Washer	S 8	tons/yr/unit :	0.330	*	1.72E-04	1.7E-02	assume 95% efficiency-closed lid, 1 unit.
Aviation Gas	S 9	1,800	0.03		0.00E+00	2.7E-05	No Haps
Used Oil Tank	S 10	3,360	Insig Activity		Insig Activity	0.0E+00	insignificant activity
			Total		0.06	0.15	

*Assume HAPS emissions are directly proportional to % by weight.

Boiler Potential Emissions - Bennett Lumber

47,837 G Tons/yr = 444,728 mmBTU/yr

	Pollutant	Emission Factor		Oper.	Units	Emissions (tons/yr)	Requested(1) Emissions (tons/yr)	(lb/hr)
(2)	Particulate	13.4	lb/hr	8,568	hrs	57.41	59.13	13.80
*	PM 10	13.27	lb/hr	8,568	hrs	56.83	58.54	13.66
**	SO 2	0.025	lbs/10^6 Btu	444,728	mmBTU/yr	5.56	5.73	1.34
**	CO	0.60	lbs/10^6 Btu	444,728	mmBTU/yr	133.42	137.42	32.08
**	NOx	0.22	lbs/10^6 Btu	444,728	mmBTU/yr	48.92	50.39	11.76
***	VOC	0.038	lbs/10^6 Btu	444,728	mmBTU/yr	8.45	8.70	2.03

(1) Based on 3% over annual estimates (PM10 -> VOC) 260.77

(2) Particulate emissions based on 2001 Source Test.

* Assume PM10/PM ratio = 0.99 (AP-42, Table 1.6.1, with scrubber)
** Table 1.6-2, Bark and wet wood fired boiler
*** Table 1.6-3

43% m.c. 44368 gt in 1995 w/o shavings
25,290 BDT = 44,368 green tons
avg of 2 hog fuels: 6684.5 Btu/lb

1995 (PSI lab results from 1995 application.. Not including shavings)
3,878 BTU/gr lb ->White fir hog fuel submitted in 1995 application.
9,491 BTU/gr lb ->Red Fir hog fuel submitted in 1995 application.
6684.5 average

0.4713 47,837 gt in 2003 (no shavings)
avg of 3 hog fuels: 4648.3 Btu/gr lb

2003
5368 BTU/gr lb ->White fir hog fuel 2003@ 0.465 mc
4647 BTU/gr lb ->Red Fir hog fuel 2003 @ 0.46 mc
3930 BTU/gr lb ->Cedar Fir hog fuel 2003 @ 0.489 mc
4648.3 average

Boiler Haps Emissions
updated 3/25/05

Hr/year: 8,568
mm BTU/year 444,728

annual lb/hr equal 0.175
24 hr lb/hr equal 2.2

Pollutant	Emission Factor (lbs/unit)	Throughput	Units	586 Regs EL (lb/hr)	586 Regs EL (lb/hr)	Max. Emissions (lb/hr)	Avg. Emissions (lb/hr)	Emissions (tons/yr)	586 emitted above EL?	586 emitted above EL?	586 AAC ug/m3 24-hr ave	586 AAC ug/m3 annual ave	ISCST3 model max imp ug/m3	Exceed AAC(C)?
Acenaphthene	9.1E-07	444,728	lbs/10⁶ Btu	NA	NA	5.67E-05	4.72E-05	0.000	no	no				
Acenaphthylene	5.0E-06	444,728	lbs/10⁶ Btu	NA	NA	3.11E-04	2.60E-04	0.001	no	no				
Acetaldehyde	8.3E-04	444,728	lbs/10⁶ Btu	NA	3.00E-03	5.17E-02	4.31E-02	0.185	[redacted]			0.46	7.54E-03	no
Acrolein	4.0E-03	444,728	lbs/10⁶ Btu	1.70E-02	NA	2.49E-01	2.08E-01	0.889			12.5		5.48E-01	no
Anthracene	3.0E-06	444,728	lbs/10⁶ Btu	NA	NA	1.87E-04	1.56E-04	0.001	no	no				
Benzaldehyde	8.5E-07	444,728	lbs/10⁶ Btu	NA	NA	5.29E-05	4.41E-05	0.000	no	no				
Benzene	4.2E-03	444,728	lbs/10⁶ Btu	NA	8.40E-04	2.62E-01	2.18E-01	0.934	[redacted]			0.12	3.82E-02	no
Benzo (a) pyrene	2.6E-06	444,728	lbs/10⁶ Btu	NA	2.60E-06	1.62E-04	1.35E-04	0.001				3.00E-04	2.36E-05	no
Benzo anthracene	6.5E-08	444,728	lbs/10⁶ Btu	NA	NA	4.05E-06	3.37E-06	0.000	no	no				
Benzo (j,k)fluoranthene	1.6E-07	444,728	lbs/10⁶ Btu	NA	NA	9.97E-06	8.30E-06	0.000	no	no				
Benzo perylene	9.3E-08	444,728	lbs/10⁶ Btu	NA	NA	5.79E-06	4.83E-06	0.000	no	no				
Benzo pyrene	2.6E-09	444,728	lbs/10⁶ Btu	NA	NA	1.62E-07	1.35E-07	0.000	no	no				
Benzoic acid	4.7E-08	444,728	lbs/10⁶ Btu	NA	NA	2.93E-06	2.44E-06	0.000	no	no				
Bis phthalate	4.7E-08	444,728	lbs/10⁶ Btu	NA	2.80E-02	2.93E-06	2.44E-06	0.000	no	no				
Bromomethane	1.5E-05	444,728	lbs/10⁶ Btu	NA	NA	9.34E-04	7.79E-04	0.003	no	no				
2-Butanone (MEK)	5.4E-06	444,728	lbs/10⁶ Btu	39.3	NA	3.36E-04	2.80E-04	0.001	no	no				
Carbaryl	1.8E-06	444,728	lbs/10⁶ Btu	NA	NA	1.12E-04	9.34E-05	0.000	no	no				
Carbon Tetra Chloride	4.5E-05	444,728	lbs/10⁶ Btu	NA	4.40E-04	2.80E-03	2.34E-03	0.010	[redacted]			0.057	4.09E-04	no
Chlorine	7.9E-04	444,728	lbs/10⁶ Btu	0.2	NA	4.92E-02	4.10E-02	0.176	no	no				
Chlorobenzene	3.3E-05	444,728	lbs/10⁶ Btu	23.3	NA	2.06E-03	1.71E-03	0.007	no	no				
Chloroform	2.8E-05	444,728	lbs/10⁶ Btu	NA	2.80E-04	1.74E-03	1.45E-03	0.006	[redacted]			0.043	2.54E-04	no
Chloromethane	2.3E-05	444,728	lbs/10⁶ Btu	NA	NA	1.43E-03	1.19E-03	0.005	no	no				
2-Chloronapthalene	2.4E-09	444,728	lbs/10⁶ Btu	NA	NA	1.49E-07	1.25E-07	0.000	no	no				
2-Chlorophenol	2.4E-08	444,728	lbs/10⁶ Btu	0.033	NA	1.49E-06	1.25E-06	0.000	no	no				
Chrysene	3.8E-08	444,728	lbs/10⁶ Btu	NA	NA	2.37E-06	1.97E-06	0.000	no	no				
Crotonaldehyde	9.9E-06	444,728	lbs/10⁶ Btu	0.38	NA	6.17E-04	5.14E-04	0.002	no	no				
Decachlorobiphenyl	2.7E-10	444,728	lbs/10⁶ Btu	NA	NA	1.68E-08	1.40E-08	0.000	no	no				
Dibenzo (a,h)anthracene	9.1E-09	444,728	lbs/10⁶ Btu	NA	NA	5.67E-07	4.72E-07	0.000	no	no				
1,2-Dichloroethane	2.9E-05	444,728	lbs/10⁶ Btu	NA	NA	1.81E-03	1.51E-03	0.006	no	no				
Dichlorobiphenyl	7.4E-10	444,728	lbs/10⁶ Btu	NA	NA	4.61E-08	3.84E-08	0.000	no	no				
1,2-Dichloroethane	2.9E-05	444,728	lbs/10⁶ Btu	NA	NA	1.81E-03	1.51E-03	0.006	no	no				
1,2-Dichloropropane	3.3E-05	444,728	lbs/10⁶ Btu	23.133	NA	2.06E-03	1.71E-03	0.007	no	no				
2,4-Dinitrophenol	1.8E-07	444,728	lbs/10⁶ Btu	NA	NA	1.12E-05	9.34E-06	0.000	no	no				
Ethylbenzene	3.1E-05	444,728	lbs/10⁶ Btu	29	NA	1.93E-03	1.61E-03	0.007	no	no				
Fluoranthene	1.6E-06	444,728	lbs/10⁶ Btu	NA	NA	9.97E-05	8.30E-05	0.000	no	no				
Fluorene	3.4E-06	444,728	lbs/10⁶ Btu	1.33E-01	NA	2.12E-04	1.76E-04	0.001	no	no				
Formaldehyde	4.4E-03	444,728	lbs/10⁶ Btu	NA	5.10E-04	2.74E-01	2.28E-01	0.978	[redacted]			0.077	4.00E-02	no
Heptachlorobiphenyl	6.6E-11	444,728	lbs/10⁶ Btu	NA	NA	4.11E-09	3.43E-09	0.000	no	no				
Hexachlorobiphenyl	5.5E-10	444,728	lbs/10⁶ Btu	NA	NA	3.43E-08	2.85E-08	0.000	no	no				
Hexanal	7.0E-06	444,728	lbs/10⁶ Btu	NA	NA	4.36E-04	3.63E-04	0.002	no	no				
Heptachlorodibenzo-p-dioxins	2.0E-09	444,728	lbs/10⁶ Btu	NA	NA	1.25E-07	1.04E-07	0.000	no	no				
Heptachlorodibenzo-p-furans	2.4E-10	444,728	lbs/10⁶ Btu	NA	NA	1.49E-08	1.25E-08	0.000	no	no				
Hexachlordibenzo-p-dioxins	1.6E-06	444,728	lbs/10⁶ Btu	NA	NA	9.97E-05	8.30E-05	0.000	no	no				
Hexachlorodibenzo-p-furans	2.8E-10	444,728	lbs/10⁶ Btu	NA	NA	1.74E-08	1.45E-08	0.000	no	no				
Hydrogen chloride	1.9E-02	444,728	lbs/10⁶ Btu	0.05	NA	1.18E+00	9.86E-01	4.225	[redacted]		375		2.60E+00	no
Indeno pyrene	8.7E-08	444,728	lbs/10⁶ Btu	NA	NA	5.42E-06	4.52E-06	0.000	no	no				
Isobutyraldehyde	1.2E-05	444,728	lbs/10⁶ Btu	NA	NA	7.47E-04	6.23E-04	0.003	no	no				
Methane	2.1E-02	444,728	lbs/10⁶ Btu	NA	NA	1.31E+00	1.09E+00	4.670	no	no				
2- Methylnapthalene	1.6E-07	444,728	lbs/10⁶ Btu	NA	NA	9.97E-06	8.30E-06	0.000	no	no				
Monochlorobiphenyl	1.6E-07	444,728	lbs/10⁶ Btu	NA	NA	9.97E-06	8.30E-06	0.000	no	no				
Napthalene	2.2E-10	444,728	lbs/10⁶ Btu	3.33	NA	1.37E-08	1.14E-08	0.000	no	no				
2-Nitrophenol	2.4E-07	444,728	lbs/10⁶ Btu	NA	NA	1.49E-05	1.25E-05	0.000	no	no				
4-Nitrophenol	1.1E-07	444,728	lbs/10⁶ Btu	NA	NA	6.85E-06	5.71E-06	0.000	no	no				
Octachlorodibenzo-p-dioxins	6.6E-08	444,728	lbs/10⁶ Btu	NA	NA	4.11E-06	3.43E-06	0.000	no	no				
Octachlorodibenzo-p-furans	8.8E-11	444,728	lbs/10⁶ Btu	NA	NA	5.48E-09	4.57E-09	0.000	no	no				
Pentachlorodibenzo-p-dioxins	1.5E-09	444,728	lbs/10⁶ Btu	NA	NA	9.34E-08	7.79E-08	0.000	no	no				
Pentachlorodibenzo-p-furans	4.2E-10	444,728	lbs/10⁶ Btu	NA	NA	2.62E-08	2.18E-08	0.000	no	no				
Pentachlorobiphenyl	1.2E-09	444,728	lbs/10⁶ Btu	NA	NA	7.47E-08	6.23E-08	0.000	no	no				
Pentachlorophenol	5.1E-08	444,728	lbs/10⁶ Btu	NA	NA	3.18E-06	2.65E-06	0.000	no	no				
Perylene	5.2E-10	444,728	lbs/10⁶ Btu	NA	NA	3.24E-08	2.70E-08	0.000	no	no				
Phenanthrene	7.0E-06	444,728	lbs/10⁶ Btu	NA	NA	4.36E-04	3.63E-04	0.002	no	no				
Phenols	5.1E-05	444,728	lbs/10⁶ Btu	1.27E+00	NA	3.18E-03	2.65E-03	0.011	no	no				
Propanal	3.2E-06	444,728	lbs/10⁶ Btu	NA	NA	1.99E-04	1.66E-04	0.001	no	no				
Propionaldehyde	6.1E-05	444,728	lbs/10⁶ Btu	0.0287	NA	3.80E-03	3.17E-03	0.014	no	no				
Pyrene	3.7E-06	444,728	lbs/10⁶ Btu	NA	NA	2.30E-04	1.92E-04	0.001	no	no				
Styrene	1.9E-03	444,728	lbs/10⁶ Btu	6.67	NA	1.18E-01	9.86E-02	0.422	no	no				
2,3,7,8 Tetrachlorodibenzo-p-dioxins	8.6E-12	444,728	lbs/10⁶ Btu	NA	1.50E-10	5.36E-10	4.46E-10	0.000	[redacted]			2.20E-06	7.81E-11	no
Tetrachlorodibenzo-p-dioxins	4.7E-10	444,728	lbs/10⁶ Btu	NA	NA	2.93E-08	2.44E-08	0.000	no	no				
2,3,7,8 Tetrachlorodibenzo-p-furans	9.9E-11	444,728	lbs/10⁶ Btu	NA	NA	6.17E-09	5.14E-09	0.000	no	no				
Tetrachlorodibenzo-p-furans	7.5E-10	444,728	lbs/10⁶ Btu	NA	NA	4.67E-08	3.89E-08	0.000	no	no				
Tetrachlorophenyl	2.5E-09	444,728	lbs/10⁶ Btu	NA	NA	1.56E-07	1.30E-07	0.000	no	no				
Tetrachloroethane	3.8E-05	444,728	lbs/10⁶ Btu	NA	1.10E-05	2.37E-03	1.97E-03	0.008	[redacted]			0.017	3.45E-04	no
0-Tolualdehyde	7.2E-06	444,728	lbs/10⁶ Btu	NA	NA	4.48E-04	3.74E-04	0.002	no	no				
p-Tolualdehyde	1.1E-05	444,728	lbs/10⁶ Btu	NA	NA	6.85E-04	5.71E-04	0.002	no	no				
Toluene	9.2E-04	444,728	lbs/10⁶ Btu	25	NA	5.73E-02	4.78E-02	0.205	no	no				
Trichlorobiphenyl	2.6E-09	444,728	lbs/10⁶ Btu	NA	NA	1.62E-07	1.35E-07	0.000	no	no				
1,1,1-Trichloroethane	3.1E-05	444,728	lbs/10⁶ Btu	NA	NA	1.93E-03	1.61E-03	0.007	no	no				
Trichloroethane	3.0E-05	444,728	lbs/10⁶ Btu	NA	NA	1.87E-03	1.56E-03	0.007	no	no				
Trichlorofluoromethane	4.1E-05	444,728	lbs/10⁶ Btu	NA	NA	2.55E-03	2.13E-03	0.009	no	no				
2,4,6-Trichlorophenol	2.2E-08	444,728	lbs/10⁶ Btu	NA	NA	1.37E-06	1.14E-06	0.000	no	no				
Vinyl Chloride	1.5E-05	444,728	lbs/10⁶ Btu	NA	9.40E-04	9.34E-04	7.79E-04	0.003	no	no				
O-Xylene	2.5E-05	444,728	lbs/10⁶ Btu	29	NA	1.56E-03	1.30E-03	0.006	no	no				
Total Organic Compounds						3.59E+00	2.99E+00	12.827						
Total Idaho TAPs							1.85E+00	7.92E+00						

	EF		BTU/yr			tons/yr
	1.04E+00	lb/mmbtu	4.45E+05	mmbtu/yr	=	231

TOC	0.039	444,728	lbs/10⁶ Btu		2.43E+00	2.02E+00	8.7
VOC	0.017	444,728	lbs/10⁶ Btu		1.06E+00	8.82E-01	3.8
N2O	0.013	444,728	lbs/10⁶ Btu		8.10E-01	6.75E-01	2.9
CO2							

Process Potential Emissions - Bennett Lumber

PM_{10} Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	120% Max hrly Emissions (lbs/hr)	140% for dry kilns Annual Emissions (tons/yr)	
Sawmill	P 1	Inside a bldg	N/A	4,590	13.07	MBF Log S/hr	60,000	MBF Log S	0.000	0.00	All emissions through TR8, P8, and P6.
Small Log Debarker	P 2	insignificant	N/A	4,590	72.03	GT/hr	330,600	GT/yr	0.000	0.00	Emissions are "insignificant"
Large Log Debarker	P 3	insignificant	N/A	306	56.86	GT/hr	17,400	GT/yr	0.000	0.00	Emissions are "insignificant"
Bark Hog	P 4	0.024	lbs/BDT	4,590	0.62	BDT/hr	2,861	BDT/yr	0.018	0.03	
Baghouse Cyclone	P 6	0.2	lbs/BDT	4,590	0.02	BDT/hr	85.5	BDT/yr	0.004	0.01	
Sawdust Cyclone	P 7	0.2	lbs/BDT	4,590	3.28	BDT/hr	15,071	BDT/yr	0.788	1.51	
Chip Screen	P 8	Inside a bldg	N/A	4,590	8.80	BDT/hr	40,384	BDT/yr	0.000	0.00	Inside a building.
New Planing Mill	P 9	Inside a bldg	N/A	4,131	24.77	MBF/hr	102,316	MBF LU SC	0.000	0.00	All emissions through P12.
Old Planing Mill	P 10	Inside a bldg	N/A	672	9.82	MBF/hr	6,600	MBF	0.000	0.00	All emissions through P11.
Shavings Cyclone	P 11	0.2	lbs/BDT	672	0.64	BDT/hr	430	BDT/yr	0.154	0.04	
Shavings Cyclone	P 12	0.2	lbs/BDT	4,131	4.73	BDT/hr	19,556	BDT/yr	1.136	1.96	
Shavings Cyclone	P 13	0.2	lbs/BDT	4,131	4.84	BDT/hr	19,986	BDT/yr	1.161	2.00	
Shavings Cyclone	P 14	0.2	lbs/BDT	4,131	4.84	BDT/hr	19,986	BDT/yr	1.161	2.00	
Dry Kiln #1	P 15	[redacted]	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.493	1.42	
Dry Kiln #2	P 16		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.493	1.42	
Dry Kiln #3	P 17		lb/1,000 BF	8,064	0.93	1,000 BF/hr	7,477	1,000 BF/yr	0.247	0.71	
Dry Kiln #4	P 18		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.493	1.42	
Dry Kiln #5	P 19		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.493	1.42	
Dry Kiln #6	P 20		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.493	1.42	7.81
Dry Kiln #7	P 25		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.493	1.42	
Dry Kiln Total							**97,201**		**2.7**	**7.8**	
Sawdust Cyclone	P 21	0.2	lbs/BDT	4,590	3.28	BDT/hr	15,071	BDT/yr	0.788	1.51	current permits have higher numbers matchi[redacted]
Bark Disk Screen	P 22	insignificant	N/A	4,590	4.89	BDT/hr	22,460	BDT/yr	0.000	0.00	Natural draft
Land Applic of ash ***	P 23	12.76	lb/acre	8760	3.00	acres	150	gr tons/yr	0.262	0.96	
Baghouse	P 24	0.001	lbs/BDT	4,160	0.02	gr lb/hr	80	BDT/yr	0.00002	0.00004	

Dry Kilns particulate EF is for PM10

*** Use k=.21 for PM 10, K = 1.0 for PM

Total 8.2 17.8

[redacted]

VOC's Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	140% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)	
Dry Kiln #1	P 15	[redacted]	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	3.894	11.22	'acfm = "drift"
Dry Kiln #2	P 16		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	3.894	11.22	'acfm = "drift"
Dry Kiln #3	P 17		lb/1,000 BF	8,064	0.93	1,000 BF/hr	7,477	1,000 BF/yr	1.947	5.61	'acfm = "drift"
Dry Kiln #4	P 18		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	3.894	11.22	'acfm = "drift"
Dry Kiln #5	P 19		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	3.894	11.22	'acfm = "drift"
Dry Kiln #6	P 20		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	3.894	11.22	'acfm = "drift"
Dry Kiln #7	P 25		lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	3.894	11.22	'acfm = "drift"
							97,201				

[redacted] 4 max

Total 25.3 72.9

Acetaldehyde Process Name	IDAPA 586 TAP	Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	140% Max h Emissions (lbs/hr)	Ave Hrly Emissions (lbs/hr)	Emissions (tons/yr)	
Dry Kiln #1	P 15	7.80E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.020	0.017	0.06	'acfm = "drift"
Dry Kiln #2	P 16	7.80E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.020	0.017	0.06	'acfm = "drift"
Dry Kiln #3	P 17	7.80E-03	lb/1,000 BF	8,064	0.93	1,000 BF/hr	7,477	1,000 BF/yr	0.010	0.008	0.03	'acfm = "drift"
Dry Kiln #4	P 18	7.80E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.020	0.017	0.06	'acfm = "drift"
Dry Kiln #5	P 19	7.80E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.020	0.017	0.06	'acfm = "drift"
Dry Kiln #6	P 20	7.80E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.020	0.017	0.06	'acfm = "drift"
Dry Kiln #7	P 25	7.80E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.020	0.017	0.06	'acfm = "drift"
							97,201					
		IDEQ						**Total**	0.132	0.110	0.38	
								IDAPA EL		0.003		

Formaldehyde Process Name	IDAPA 586 TAP	Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	140% Max h Emissions (lbs/hr)	Ave Hrly Emissions (lbs/hr)	Emissions (tons/yr)	
Dry Kiln #1	P 15	4.10E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.011	0.009	0.03	'acfm = "drift"
Dry Kiln #2	P 16	4.10E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.011	0.009	0.03	'acfm = "drift"
Dry Kiln #3	P 17	4.10E-03	lb/1,000 BF	8,064	0.93	1,000 BF/hr	7,477	1,000 BF/yr	0.005	0.004	0.02	'acfm = "drift"
Dry Kiln #4	P 18	4.10E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.011	0.009	0.03	'acfm = "drift"
Dry Kiln #5	P 19	4.10E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.011	0.009	0.03	'acfm = "drift"
Dry Kiln #6	P 20	4.10E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.011	0.009	0.03	'acfm = "drift"
Dry Kiln #7	P 25	4.10E-03	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.011	0.009	0.03	'acfm = "drift"
							97,201					
		OSU study - Worst case - white fir						**Total**	0.06919	0.058	0.20	
								IDAPA EL		0.00051		

Methanol Process Name	IDAPA 585 TAP	Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	140% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)	
Dry Kiln #1	P 15	6.50E-02	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.145	0.49	'acfm = "drift"
Dry Kiln #2	P 16	6.50E-02	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.145	0.49	'acfm = "drift"
Dry Kiln #3	P 17	6.50E-02	lb/1,000 BF	8,064	0.93	1,000 BF/hr	7,477	1,000 BF/yr	0.072	0.24	'acfm = "drift"
Dry Kiln #4	P 18	6.50E-02	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.145	0.49	'acfm = "drift"
Dry Kiln #5	P 19	6.50E-02	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.145	0.49	'acfm = "drift"
Dry Kiln #6	P 20	6.50E-02	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.145	0.49	'acfm = "drift"
Dry Kiln #7	P 25	6.50E-02	lb/1,000 BF	8,064	1.85	1,000 BF/hr	14,954	1,000 BF/yr	0.145	0.49	'acfm = "drift"
		OSU study - Worst case - Ponderosa pine						**Total**	0.940	3.2	
								IDAPA EL	17.300		

Total Potential Emissions - Bennett Lumber

Non-fugitive Emissions

Source	Particulate (tons/yr)	PM 10 (tons/yr)	VOC's (tons/yr)	SO 2 (tons/yr)	CO (tons/yr)	NOx (tons/yr)	Total HAPs (tons/yr)	Acetald (tons/yr)	Formaldehyde (tons/yr)	Methanol (tons/yr)	Methane (tons/yr)
Process*	17.82	17.82	72.90	NA	NA	NA	3.74	0.379	0.199	3.159	NA
Boiler	59.13	58.54	8.70	5.73	137.42	50.39	7.92	0.185	0.978	NA	4.670
Subtotal	77.0	76.4	81.6	5.7	137.4	50.4	11.7	0.564	1.178	3.159	4.670

[redacted]ons.

Fugitive Emissions

Source	Particulate (tons/yr)	PM 10	VOC's (tons/yr)	SO 2 (tons/yr)	CO (tons/yr)	NOx (tons/yr)	Total HAPs (tons/yr)	Acetald (tons/yr)	Formaldehyde (tons/yr)	Methanol (tons/yr)
Fugitive - Roads	1.00	3.60	NA	NA	NA	NA	NA	NA	NA	NA
Transfer - Conveyors	13.09	0.00	NA	NA	NA	NA	NA	NA	NA	NA
Transfer - Trucks	41.79	0.00	NA	NA	NA	NA	NA	NA	NA	NA
Storage - Piles	0.47	0.01	NA	NA	NA	NA	NA	NA	NA	NA
Storage - Bins	5.24	0.00	NA	NA	NA	NA	NA	NA	NA	NA
Solvents	NA	NA	0.15	NA	NA	NA	0.06	NA	NA	NA
Subtotal	61.6	3.6	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0
PLANTWIDE TOTAL	138.5	80.0	81.8	5.7	137.4	50.4	11.7	0.6	1.2	3.2

APPENDIX B

P-050206

Modeling Review

MEMORANDUM

DATE: July 8, 2005

TO: Darrin Mehr, Air Quality Division

THROUGH: Kevin Schilling, Stationary Source Modeling Coordinator, Air Quality Division

FROM: Dustin Holloway, Modeling Analyst, Air Quality Division

PROJECT NUMBER: P-050206

SUBJECT: Modeling Review for the Bennett Lumber Products, Inc. Facility in Princeton

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1. SUMMARY

Bennett Lumber Products, Inc. (BLPI) submitted ambient air quality dispersion modeling in support of a permit to construct (PTC) application for an additional dry kiln at their Princeton facility. The analysis included a facility-wide 24-hour average PM_{10} impact analysis.

Based on the results of the applicant's and DEQ's analyses, DEQ has determined that the modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards.

2. BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits

BLPI is located in Princeton, in Latah county. Latah county is designated attainment or unclassifiable for all criteria air pollutants. Table 2.1 provides significant contribution levels (SCL) and national ambient air quality standards for criteria pollutants which apply to this project. When ambient impacts from project-specific emissions exceed the SCL facility-wide modeling is necessary to demonstrate compliance with NAAQS.

Table 2.1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels ($\mu g/m^3$)[a, b]	Regulatory Limit ($\mu g/m^3$)[c]	Modeled Value Used[d]
PM_{10}[e]	24-hour	5	150[f]	Maximum 6th highest[g] Highest 2nd highest[h]

[a] IDAPA 58.01.01.006.91
[b] Micrograms per cubic meter
[c] IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.
[d] The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants.
[e] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f] Never expected to be exceeded more than once in any calendar year.
[g] Concentration at any modeled receptor when using five years of meteorological data.
[h] The highest 2nd high is considered to be conservative for five years of meteorological data.

2.2 Background Concentrations

DEQ updated the background concentration data for Idaho in the Spring of 2003[1]. The background concentration used in this analysis is the default 24-hour average PM_{10} concentration for rural/agricultural areas (73 $\mu g/m^3$) in Idaho.

3. ASSESSMENT OF MODELING ANALYSIS

3.1 Modeling Methodology

Chris Johnson, BLPI's consultant, conducted the dispersions modeling analysis. The submittal included a full-impact analysis for 24-hour average PM_{10} impacts. Short-term PM_{10} emissions are the only emissions associated with this project whose increase requires a modeling analysis. Formaldehyde and acetaldehyde emissions increase in the short-term, however the facility requested the same long term emission limits and processing limits as their prior permit. Compliance with TAP preconstruction requirements was demonstrated through emissions netting, as defined in IDAPA 58.01.01.210.09. Therefore, TAP modeling was not required. The following table summarizes the modeling parameters and DEQ's review and determination of those parameters.

Table 3.1 MODELING PARAMETERS

Parameter	What Facility Submitted	DEQ's Review/Determination
Modeling protocol	Protocol was submitted prior to application	DEQ reviewed and approved the protocol. The submitted analysis adhered to the methods outlined in the protocol and established guidelines for regulatory dispersion modeling.
Model Selection	ISCPRIME	This is an appropriate model for this facility.
Meteorological Data	1987-1991 Spokane meteorological data	This is the most representative meteorological data available for this area.
Model Options	Regulatory default	Regulatory default options are appropriate for this analysis.
Land Use	Rural	Rural dispersion coefficients were used in this analysis because the land use in the area around this facility is primarily agricultural or forestry.
Terrain	The effects of terrain on dispersion were calculated.	The analysis included receptor elevations and the model was run to account for the effects of both simple and complex terrain.
Building Downwash	Building downwash effects were calculated.	The PRIME downwash algorithm calculates the effects of both building wakes and recirculation cavities.
Receptor Network	25 meter spacing along the fenceline; 50 meter spacing out to 1,000 meters; 100 meter spacing out to 2,500 meters; 500 meter spacing out to 10,000 meters	This receptor network is sufficient to reasonably resolve the maximum concentrations.
Facility Layout	The model included the buildings at the facility	The facility layout was verified by comparing it to the submitted facility plot plans.

3.2 Emission Rates

The following table summarizes the emission rates used in the modeling analysis.

[1] Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling.* Memorandum to Mary Anderson, March 14, 2003.

Table 3.2 Emission Rates

Source ID	Source Description	PM_{10} (lb/hr)
HFBOILER	Hog-Fuel Boiler	13.8
KILN5N	Kiln	1.2E-01
KILN3N	Kiln	6.2E-02
KILN1N	Kiln	1.2E-01
KILN5T	Kiln	1.2E-01
KILN3T	Kiln	6.2E-02
KILN1T	Kiln	1.2E-01
KILN5M	Kiln	1.2E-01
KILN3M	Kiln	6.2E-02
KILN1M	Kiln	1.2E-01
KILN5S	Kiln	1.2E-01
KILN3S	Kiln	6.2E-02
KILN1S	Kiln	1.2E-01
KILN6M	Kiln	1.2E-01
KILN4M	Kiln	1.2E-01
KILN2M	Kiln	1.2E-01
KILN6S	Kiln	1.2E-01
KILN4S	Kiln	1.2E-01
KILN2S	Kiln	1.2E-01
KILN6N	Kiln	1.2E-01
KILN4N	Kiln	1.2E-01
KILN2N	Kiln	1.2E-01
KILN6T	Kiln	1.2E-01
KILN4T	Kiln	1.2E-01
KILN2T	Kiln	1.2E-01
KILN7N	Kiln	1.2E-01
KILN7T	Kiln	1.2E-01
KILN7M	Kiln	1.2E-01
KILN7S	Kiln	1.2E-01
P7	Sawdust Cyclone	8.0E-01
P11	Shavings Cyclone	1.5E-01
P12	Shavings Cyclone	1.1E+00
P13	Shavings Cyclone	1.2E+00
P14	Shavings Cyclone	1.2E+00
P21	Shavings Cyclone	7.9E-01
P24	Baghouse	2.0E-05

3.3 *Emission Release Parameters*

The following table summarizes the emission release parameters for the sources in the dispersion modeling analysis.

Table 3.3 EMISSION RELEASE PARAMETERS

Source ID	Easting (m)	Northing (m)	Elevation (m)	Stack Height (ft)	Stack Temperature (°F)	Exit Velocity (m/s)	Stack Diameter (ft)
HFBOILER	517,394.0	5,195,717.0	772.7	50	610	20.81	3.6
KILN5N	517,306.0	5,195,962.2	772.7	28.5	170	5.046	3.5
KILN3N	517,322.3	5,195,962.2	772.7	28.5	170	5.05	3.5
KILN1N	517,338.7	5,195,962.2	772.7	28.5	170	5.05	3.5
KILN5T	517,306.0	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN3T	517,322.3	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN1T	517,338.7	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN5M	517,306.0	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN3M	517,322.3	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN1M	517,338.7	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN5S	517,306.0	5,195,951.0	772.7	28.5	170	5.05	3.5
KILN3S	517,322.3	5,195,951.0	772.7	28.5	170	5.05	3.5
KILN1S	517,338.7	5,195,951.0	772.7	28.5	170	5.05	3.5
KILN6M	517,300.5	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN4M	517,316.9	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN2M	517,333.2	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN6S	517,300.5	5,195,951.0	772.7	28.5	170	5.05	3.5
KILN4S	517,316.9	5,195,951.0	772.7	28.5	170	5.05	3.5
KILN2S	517,333.2	5,195,951.0	772.7	28.5	170	5.05	3.5
KILN6N	517,300.5	5,195,962.2	772.7	28.5	170	5.05	3.5
KILN4N	517,316.9	5,195,962.2	772.7	28.5	170	5.05	3.5
KILN2N	517,333.2	5,195,962.2	772.7	28.5	170	5.05	3.5
KILN6T	517,300.5	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN4T	517,316.9	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN2T	517,333.2	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN7N	517,348.0	5,195,962.2	772.7	28.5	170	5.05	3.5
KILN7T	517,348.0	5,195,954.8	772.7	28.5	170	5.05	3.5
KILN7M	517,348.0	5,195,958.5	772.7	28.5	170	5.05	3.5
KILN7S	517,348.0	5,195,951.0	772.7	28.5	170	5.05	3.5
P7	517,404.0	5,195,717.0	772.7	59	68	1.5	2.9
P11	517,302.0	5,195,800.0	772.7	60	68	24.9	3.0
P12	517,302.0	5,195,800.0	772.7	75	68	1.7	7.0
P13	517,365.0	5,195,740.0	772.7	52	68	44.5	2.5
P14	517,415.0	5,195,717.0	772.7	60	68	25.5	3.3
P21	517,438.0	5,195,748.0	772.7	53	68	2.1	2.5
P24	517,422.0	5,195,763.0	772.7	19	68	0.001[a]	1.0

[a] Sources with exit velocities of 0.001 m/s have either horizontal releases or rain caps.

3.4 Results

Table 3.4 presents results of the ambient air impact analysis. The results of the analysis demonstrate, to DEQ's satisfaction, that the project will not cause or significantly contribute to a violation of any ambient air quality standards.

Table 3.4 FULL IMPACT ANALYSIS RESULTS

Pollutant	Averaging Period	Facility Ambient Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ambient concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hour	47.8	73	120.8	150	80.5%

APPENDIX C

P-050206

AIRS Form

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Bennett Lumber Products, Inc.
Facility Location: Princeton, ID
AIRS Number: 057-00008

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	A						A	U
PM_{10}	B							U
PT (Particulate)	SM							
VOC	B							U
THAP (Total HAPs)	NA							NA
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

APPENDIX D

P-050206

Oregon State University Small-Scale Kiln Study

Summary Table 1

TABLE 1. Summary of drying times and total hydrocarbon, methanol, and formaldehyde released. Values are adjusted to 12% moisture content for ponderosa pine and 15% moisture content for the other species.

	Event	Volume (brd ft)	Time to final MC (hrs:min)	VOCs as Carbon			Methanol, (lb/mbf)	Formalde-hyde, (lb/mbf)
				(g/event)	(lbs/mbf)	(g/kg_{ODwood})		
ponderosa	2	75.68	58:28	48.1	1.40	0.85		
	3	75.68	57:07	44.7	1.30	0.78		
	4	75.68	55:02	47.5	1.29	0.89	0.050	0.0022
	5	75.68	57:04	57.7	1.54	1.06	0.080	0.0036
ponderosa			56:54		1.38	0.89	0.065	0.0029
white fir	1	73.33	36:19	8.49	0.26	0.16		
	2	73.33	43:19	8.84	0.27	0.16		
	3	73.33	42:36	7.43	0.22	0.14	0.096	0.0022
	4	73.33	46:54	8.42	0.25	0.16	0.148	0.0034
white fir ave.			42:17		0.26	0.156	0.122	0.0028
lodgepole	2	80.66	16:34				0.062	0.0041
	3	80.66	16:49	43.7	1.19	0.74		
	4	80.66	16:01	43.0	1.17	0.71	0.063	0.0041
	5	80.66	16:01	32.0	0.87	0.56	0.056	0.0039
lodgepole			16:13		1.08	0.67	0.060	0.0040
Douglas-fir	1	73.33	23:31	17.1	0.51	0.25	0.025	0.00084
	2	73.33	28:28	18.4	0.55	0.28	0.023	0.00079
	3	73.33	27:04	15.0	0.45	0.24	0.026	0.00166
	4	73.33	25:13	15.3	0.46	0.22	0.018	0.00109
Douglas-fir			26:04		0.49	0.25	0.023	0.0010